
PERSPECTIVES ON MARINE WATER QUALITY

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Editors' Note: *This is an outline of Mr. Eichenberg's talk.*

Until 1972, the United States had no national program for regulating the discharge of sewage and industrial pollutants

- For 200 years, the only remedies for pollution were legal actions under common law nuisance and riparian rights.
- The 1899 Refuse Act (§13 of the Rivers and Harbors Act) provided criminal liability for the discharge of refuse, but it was minimally enforced and rarely used to control water pollution.
- Federal clean water laws enacted in 1948, 1956, 1965, and 1966 provided funding to states for the construction of sewage treatment plants, and developed requirements for state water quality standards.
- However, ambient water quality standards, or WQS (i.e., instream uses and water quality criteria to protect those uses) were largely ineffective due to inadequate implementation and enforcement, inadequate means to identify polluters, and no national permitting program or effluent standards.
- By 1972, more than 60% of assessed rivers, lakes, and estuaries were not fishable/swimmable, and over 50% of the wetlands in the continental United States had been destroyed.

In 1972, conditions were ripe for the adoption of national clean water legislation.

- The Clean Water Act (CWA) was overwhelmingly passed over President Nixon's veto (52-12/Senate, 247-23/House).
- Objective of the CWA: "To restore and maintain the chemical, physical and biological integrity of the Nation's waters" [§101(a)]
- Goals of the CWA [§101(a)(1-3)]:
 - Eliminate the discharge of pollutants by 1985.
 - Wherever attainable, provide for the protection and propagation of fish, shellfish and wildlife, and recreation in and on the water by 1983.
 - Prohibit the discharge of toxic pollutants in toxic amounts.
- Basic provisions of the CWA:
 - §301 makes illegal the discharge of pollutants without a permit .
 - §402 requires National Pollutant Discharge Elimination System (NPDES) permits for sewage and industrial point source discharges; administered by the Environmental protection Agency (EPA) and assumable by the states.
 - §304 requires technology-based, national effluent limits for toxic and conventional pollutants.
 - BPT for existing sources of pollution.
 - BCT (economically achievable) for conventional pollutants (pH, ss, BOD, secondary treatment).
 - BAT economically achievable for toxics .
 - BADT for new sources.
 - §404 establishes a national permitting program for the discharge of dredged or fill material into navigable waters administered by the Corps and EPA, and assumable by the states.
 - §303 requires states to establish water quality standards to:
 - Provide additional controls where technology-based controls are inadequate to protect water quality.
 - Keep clean waters clean (antidegradation).
 - Restore impaired waters [§303(d)].

We have made significant progress in addressing water quality problems since 1972.

- Federal, state and local governments and industry have spent more than \$200 billion on reducing the discharge of sewage and industrial pollutants.
- The number of people served by secondary and advanced wastewater treatment has doubled (to about 180 million), and pollutant loads from POTWs have decreased by 40%.
- Over 100,000 tons of toxic metals and organic material are removed from discharges annually.

EPA estimates that 60% of water quality impairment now comes from nonpoint sources (NPS) of pollution.

But we still have a long way to go to meet the goals of the CWA

- 40% of rivers, lakes, and estuaries “assessed” still are not fishable/swimmable, and only 16% of major watersheds have good water quality.
- We know very little about the condition of our waters; few are adequately surveyed (less than 20% of rivers, 10% of ocean waters, 40% of lakes, and 72% of estuaries).
- We still lose about 120,000 acres of wetlands per year which protect water quality, prevent flooding, and provide habitat and recreational opportunities.
- More than 4,000 beaches were closed or posted due to contamination in 1997.
- More than 2,100 fish consumption advisories were posted in 1996.
- More than 30% of our shellfish beds are harvest-restricted.
- More than 50% of all estuaries have low or no oxygen levels at some point during the year; the Gulf of Mexico has a 7,000 square mile dead zone that appears each summer.
- Between 1972 and 1998, the number of HABs doubled (pfiesteria, red and brown tides).

- The General Accounting Office (GAO) reports that 20-25% of major facilities are in significant noncompliance with the CWA.
- We still have major infrastructure needs: \$137 billion is needed for secondary and advanced treatment, combined and sanitary sewer overflows.

The CWA has not been reauthorized since 1987; new approaches are needed to address remaining clean water challenges

- EPA estimates that 60% of water quality impairment now comes from nonpoint sources (NPS) of pollution.
 - The leading source of NPS pollution is agriculture which causes 60% of the river, 50% of the lake, and 54% of the estuary impairment.
- About 130 times more animal waste than human waste is produced, but there are no federal regulations for the handling, storage, use or disposal of animal waste.
- Most large CAFOs are unregulated despite CWA §502(14) permitting requirements (about 2,000 of the 450,000 feedlots are permitted).
- Less than 3% of the SRF has been devoted to NPS pollution.
- §319 of the CWA provides no mandatory controls on the major sources of NPS pollution.
- NOAA’s Coastal Nonpoint Pollution Control Program is moribund:
 - Established under §6217 of the 1990 amendments to CZAMA, it still has not produced an approved state plan
 - It has received only \$1M in federal funding since 1995 (although \$8M was appropriated in FY 1999, and \$12 million is requested in FY2000 budget).
- Therefore, an enforceable national program to prevent polluted runoff should be established to

reduce the major cause of water quality impairment that:

- Identifies and targets significant sources of NPS.
- Applies enforceable measures with milestones and deadlines to meet WQS in 10 years .
- Requires immediate mandatory controls for significant new sources of NPS.
- Provides adequate EPA backup authority and WQ monitoring.
- Requires NPS controls/monitoring on federal lands.
- Provides adequate federal funding (up to \$500 million/year) as provided in the President's 1998 Clean Water Action Plan.
- Requires permits for large factory farms with minimum standards for manure storage structures, setbacks from water bodies, manure application requirements, advanced treatment for large operations (7,000 = city of 45,000), and provides bonding and public notice for permits.
- Regulates stormwater discharges from small municipalities, industries, and construction sites.
- There are no enforceable national standards for monitoring and posting swimming beaches
 - There have been more than 20,000 beach closures and advisories since 1988 from polluted runoff, stormwater, sewage spills, and overflows
 - Only 8 states comprehensively monitor their beaches and notify the public (NJ, NH, NC, DE, IL, CT, IN, OH).
 - Five states lack any regular monitoring of beach water quality (AL, GA, LA, OR, WA).
 - Most states have not adopted EPA's suggested criteria, and still use fecal and total coliform indicators.
- Therefore, national standards should be established for beach water quality, monitoring beaches and for posting waters that pose a public health threat.
- There are no enforceable national standards for fish consumption advisories.
- Fish consumption advisories rose by 26% in 1996 to 2193, including advisories in 100% of the Great Lakes and their connecting waters and a large portion of the nation's coastal waters.
- Most of the advisories were for mercury (76%); PCBs, chlordane, dioxins and DDT were also frequently cited.
- differences among state programs are vast.
- Therefore, federal standards are needed to provide consistency, additional training and enforceable mandates for testing and posting fishing areas to ensure that the public health is protected adequately.
- State water quality standards are not protecting adequately existing and designated uses, nor do they address adequately excess nutrients, sediment contamination, and the loss of habitat. Therefore, EPA should strengthen its rules governing water quality standards by:
 - Adopting water quality criteria for nutrients (nitrogen and phosphorous), sediments, physical and biological resources, and requiring the adoption and implementation of such criteria by states.
 - Strengthening the implementation of state antidegradation policies to protect waters that meet or exceed minimum fishable/swimmable standards.
 - Prohibiting the use of mixing zones, especially for toxic pollutants and pollutants that persist or bioaccumulate in the environment.
 - Bringing impaired waters into compliance with CWA standards within 8-10 years by ensuring that states identify and list waters that do not meet WQS, and develop TMDLs and WLAs to reduce pollutants from point and nonpoint sources.